

REMARKS

Claims 1-21 are currently pending in this application. Claims 1-6 and 12-21 have been withdrawn from consideration in view of an earlier Restriction Requirement. Therefore, claims 7-11, which relate to Figs. 3-9, remain pending in this application. The Examiner has indicated that claim 8 would be allowable if rewritten in independent form including all the limitations of the base claims and any intervening claims. This Amendment cancels claims 1-6 and 12-21 without prejudice and amends the specification, the title of the Abstract and claim 7. Support for the amendments to the specification and claim can be found in the specification, drawings and claims as originally filed. No new matter has been added.

Applicants hereby reserve the right to prosecute cancelled claims 1-6 and 12-21 by way of a divisional application filed at a later time.

Applicants also request that the Examiner acknowledge our claim of priority to United States Provisional Application No. 60/394,472, filed July 8, 2002 in the next Official Communication.

The Examiner has objected to the title of the Abstract, which has been corrected by this Amendment. The specification has also been amended to conform to the language recited in amended claim 7.

The present invention, as claimed in amended independent claim 7, is directed to a diaphragm for use in a diaphragm-type flush valve. The flush valve includes a barrel section having a sealing end adapted to seal against the diaphragm. The diaphragm includes a flexible diaphragm body having a first side and a second side and defining an outer periphery, wherein the second side of the diaphragm body is positioned adjacent the barrel section. The diaphragm further includes a center passageway defined in the diaphragm body, an annular protrusion defined on the second side of the diaphragm body adjacent the center passageway, and a plurality of protruding ribs having a first end and a second end defined on the second side of the diaphragm body adjacent the protrusion. The first end of the rib extends radially outward away from the center passageway toward the second end of the rib. The first end of the rib and the protrusion define a recess area therebetween adapted to receive a sealing end of a barrel section. The second side of the diaphragm body is concave and the first side of the diaphragm body is convex when a pressure difference is applied

across the diaphragm body, whereby a distance between the first end of the rib and the protrusion decreases thereby squeezing against the barrel section before the sealing end of the barrel section is received within the recess area of the diaphragm body. The recess area also defines a sealing surface adapted to contact the sealing end when the barrel section is received within the recess area. As discussed below in detail, none of the prior art references teaches or suggests a diaphragm having a recess area for receiving a barrel section or a sealing surface defined within the recess area for contacting the sealing end of the barrel section. Also, the prior art references do not teach or suggest a diaphragm wherein the first end of the rib and the protrusion squeezes against the barrel section before the sealing end of the barrel section is received within the recess area of the diaphragm body as claimed in amended claim 7.

The Examiner has rejected claims 7, 9 and 11 under 35 U.S.C. § 102(b) for anticipation by U.S. Patent No. 5,967,182 to Wilson (hereinafter "the '182 patent"). Claims 7, 9, 10 and 11 stand rejected under 35 U.S.C. § 102(e) for anticipation by U.S. Patent No. 6,616,119 to Wilson (hereinafter "the '119 patent"). The Examiner asserts that the '182 patent and the '119 patent disclose a flexible two-sided diaphragm which includes a central passageway, an annular protrusion adjacent the central passageway and protruding ribs on the same diaphragm side as the annular protrusion (i.e., upper side), wherein a gap or recess is defined between the ribs and the protrusion. Specifically, the Examiner asserts that the '119 patent discloses tapered protruding ribs. In response, independent claim 7 has been amended to limit the orientation of the protrusion and ribs to a second side of the diaphragm body, wherein a sealing end of a barrel section is adapted to be received within a recess area and, wherein the sealing end is adapted to contact a sealing surface defined within the recess area. Support for the amendment to the claim can be found, for example, in Figs. 5-9 and on page 6, paragraphs [0029] and [0030] of the present specification. For the reasons discussed below, amended claim 7 is believed to be distinguishable over the '182 patent and the '119 patent.

The '182 patent discloses a diaphragm 18 that includes a central opening 76, wherein the upper surface of the diaphragm has a plurality of upwardly facing lugs 80 or ribs (column 5, lines 26-36). Fig. 2 of the '182 patent also shows a small annular protrusion adjacent the central passageway on the upper surface of the diaphragm 18. The lugs 80 on

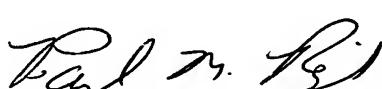
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the upper surface of the diaphragm 18 contact the underside of the inner cover when the diaphragm 18 is in the upper or raised position, thereby providing a path for water to flow from the bypass orifice to the entire upper pressure chamber 50 (column 5, lines 36-40). The '119 patent, which is similar to the '182 patent, also discloses a diaphragm having a central passageway, a plurality of tapered protruding ribs on an upper surface and an annular protrusion also on the upper surface adjacent the central passageway as shown in Figs. 2 and 3. It is the lower surface of the diaphragm in both the '182' patent and the '119 patent that is adapted to seal against a barrel section, not the upper surface having the protrusion and the ribs. Furthermore, the lower surface of the diaphragm does not have a recess area for receiving a sealing end of a barrel section. Therefore, the '182' patent and the '119 patent do not teach or suggest a diaphragm having both the ribs and protrusion on a surface that is adapted to receive a sealing end of a barrel section, or a recess area on the barrel receiving surface (i.e., lower surface) for receiving the sealing end of the barrel section. Because the cited prior art references do not teach or suggest each and every element of amended independent claim 7, withdrawal of the rejection and allowance of claims 7-11 are respectfully requested.

Respectfully submitted,

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